



# VIEW Certified Configuration Guide

Siemens

HiPath Wireless System  
with 2610, 2620 APs

## Trademark Information

Polycom® and the logo designs  
SpectraLink®  
LinkPlus  
Link  
NetLink  
SVP

Are trademarks and registered trademarks of Polycom, Inc. in the United States of America and various countries. All other trademarks used herein are the property of their respective owners.

## Patent Information

The accompanying product is protected by one or more US and foreign patents and/or pending patent applications held by Polycom, Inc.

## Copyright Notice

Copyright © 2006 to 2008 Polycom, Inc.

All rights reserved under the International and pan-American copyright Conventions.

No part of this manual, or the software described herein, may be reproduced or transmitted in any form or by any means, or translated into another language or format, in whole or in part, without the express written permission of Polycom, Inc.

Do not remove (or allow any third party to remove) any product identification, copyright or other notices.

Every effort has been made to ensure that the information in this document is accurate. Polycom, Inc. is not responsible for printing or clerical errors. Information in this document is subject to change without notice and does not represent a commitment on the part of Polycom, Inc.

## Notice

Polycom, Inc. has prepared this document for use by Polycom personnel and customers. The drawings and specifications contained herein are the property of Polycom and shall be neither reproduced in whole or in part without the prior written approval of Polycom, nor be implied to grant any license to make, use, or sell equipment manufactured in accordance herewith.

Polycom reserves the right to make changes in specifications and other information contained in this document without prior notice, and the reader should in all cases consult Polycom to determine whether any such changes have been made.

No representation or other affirmation of fact contained in this document including but not limited to statements regarding capacity, response-time performance, suitability for use, or performance of products described herein shall be deemed to be a warranty by Polycom for any purpose, or give rise to any liability of Polycom whatsoever.

## Contact Information

Please contact your Polycom Authorized Reseller for assistance.

Polycom, Inc.  
4750 Willow Road,  
Pleasanton, CA 94588  
<http://www.polycom.com>

## Introduction

SpectraLink's Voice Interoperability for Enterprise Wireless (VIEW) Certification Program is designed to ensure interoperability and high performance between SpectraLink 8000 Wireless Telephones and WLAN infrastructure products. The products listed below have been thoroughly tested in SpectraLink's lab and have passed VIEW Certification. This document details how to configure Siemens HiPath C10, C100, C1000 Wireless Controllers and 2610 & 2620 access points (APs) with SpectraLink 8000 Wireless Telephones.

## Certified Product Summary

Manufacturer:	Siemens HiPath Wireless: <a href="http://enterprise.usa.siemens.com/products/solutions/hipathwireless.html">http://enterprise.usa.siemens.com/products/solutions/hipathwireless.html</a>	
Approved products:	Wireless Controllers	Access Points
	C10 † C100 C1000	2610 † 2620 †
RF technology:	802.11b/g	
Radio:	2.4 – 2.484 GHz	
Security:	WPA-PSK, WPA2-PSK	
AP firmware version tested:	3.1.4.03.03	
SpectraLink handset models tested:	e340/h340/i640	8020/8030
SpectraLink handset software tested:	89.124	122.010 or greater
SpectraLink radio mode:	802.11b	802.11b
Maximum telephone calls per AP:	10	10
Recommended network topology:	Switched Ethernet (recommended)	

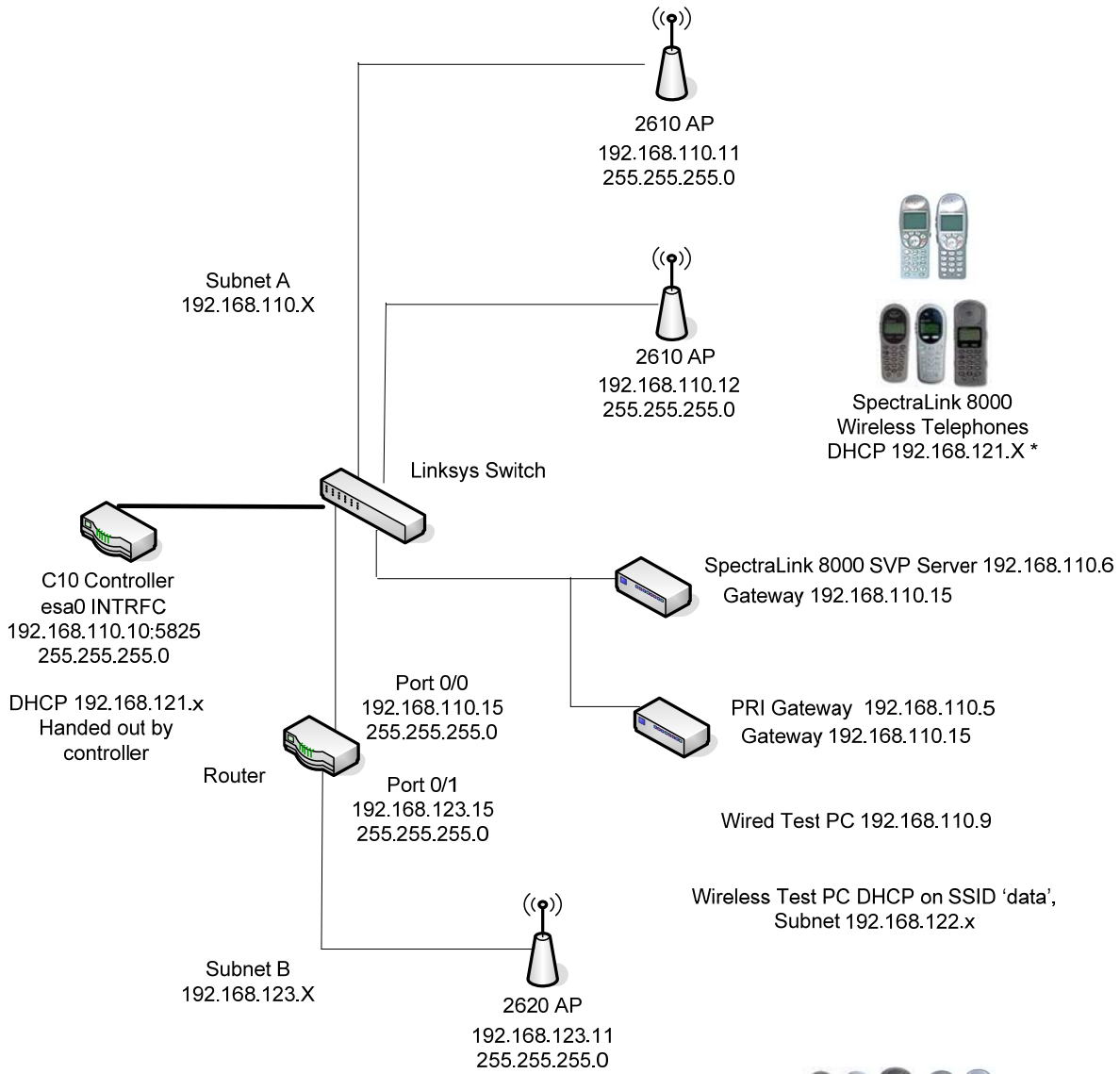
† Denotes products directly used in VIEW Certification testing

## Known Limitations

- Beacons are sent from the AP inconsistently; therefore you may see decreased battery life on the handsets.
- A hex-key is not supported with both WPA-PSK and WPA2-PSK. You must use a passphrase for each.
- Because the Controller configures a virtual subnet, broadcast data cannot be sent to the handsets.

# Network Topology

The following topology was tested during VIEW Certification. It is important to note that these do not necessarily represent all "certified" configurations. The access points were powered through a mid-span POE adaptor.



\*All clients are on their own 'Virtual Subnet', per SSID

## Installing Software & Configuration

1. If software upgrades are required, contact Siemens Customer Support for the latest version of software and instructions.
2. The current version of software installed can be found by opening a telnet session of the AP and typing the command **version**, or by looking at the configuration GUI under **Wireless APs** and selecting the general tab for the AP in the field **s/w version**.
3. If you encounter difficulties or have questions regarding the configuration process, please contact your Siemens representative or visit the web site  
<http://enterprise.usa.siemens.com/products/solutions/hipathwireless.html>

## Initial Setup

1. The following instructions are for configuring a wireless controller and a number of access points with no prior configuration.
2. All of the initial setup is done via a web interface. Connect a 'Cross-Over' Ethernet cable directly from the Management Port of the controller to a PC's Ethernet port.
3. Log onto the controller by opening a web browser and connect to <https://192.168.10.1:5825/>. The default username is **admin**; the default password is **abc123**.
4. Do this step only if it is necessary to reset the controller back to its factory default configuration:
  - a. Click the **Wireless Controller** button to open the **Wireless Controller Configuration** screen.
  - b. In the navigation pane, click **System Maintenance**.
  - c. Click the **Reset database to factory default and reboot** button.
  - d. Click the **Apply** button.  
This will reset the database and cause the controller to reboot. It will take three to four minutes before the controller is finished.

# Controller Setup

The setup steps described below refer to the network topology diagram shown in this document. Make sure all the access points are disconnected from the system if configuring the system for the first time.

## Assigning an IP address to a wireless controller

1. Log onto the controller by opening a web browser and connect to <https://192.168.10.1:5825/>. The default username is **admin**; the default password is **abc123**.
2. Click the **Wireless Controller** button.
3. In the navigation pane, click **IP Addresses**.
4. Change the value of **esa0** to **192.168.110.10** for the **IP Address**, and to **255.255.255.0** for the **Subnet mask**.
5. Select the **Mgmt** and **SLP** check boxes for this port only (thus turning it on). Leave these unchecked (off) for the other ports.
6. For **Function**, select **Host Port** if static routing is used. Otherwise, select **Dynamic Port** if Open Shortest Path First (OSPF) is being used for routing and routing advertisements.
7. Enter **esa0** for **Multicast Support**. Refer to the screen shot shown below.
8. Click the **Save** button.



This is for topologies where the SpectraLink 8000 Telephony Gateway(s) and SVP Servers are located adjacent to the **esa0** port, as was done in this VIEW Certification test. In topologies where the setup is different, this multicast setting should be configured to whichever port the SpectraLink servers are adjacent to. This setting permits proper wired replication of multicast data from the wireless subnet.

**SIEMENS HiPath Wireless Controller Configuration**

Home | Logs & Traces | Reports | **Wireless Controller** | Wireless APs | VNS Configuration | Mitigator | About | LOGOUT

**Management Port Settings**

Hostname: SpectraView1      Management Gateway: 192.168.10.100  
 Domain: siemens.com      Primary DNS:  
 IP Address: 192.168.10.1      Secondary DNS:  
 Subnet mask: 255.255.255.0

Modify

**Interfaces**

Port	IP address	MAC	Subnet mask	Port Func	MTU	Mgmt	SLP
✓ esa0	192.168.110.10	00:00:50:1A:5C:B6	255.255.255.0	Host Port	1500	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
✓ esa1	10.0.1.1	00:00:50:1A:5C:B7	255.255.255.0	Host Port	1500	<input type="checkbox"/>	<input type="checkbox"/>
✓ esa2	10.0.2.1	00:00:50:1A:5C:B8	255.255.255.0	Host Port	1500	<input type="checkbox"/>	<input type="checkbox"/>
✓ esa3	10.0.3.1	00:00:50:1A:5C:B9	255.255.255.0	Host Port	1500	<input type="checkbox"/>	<input type="checkbox"/>

IP address:       Function:

Subnet mask:       MTU:

Multicast Support:

Save      Cancel

[ SpectraView1 | 0 days, 19:28 ] User: admin Port status: M

Software: Rel3.1 (3.1.1.00.09) | Tracing: Inactive  
 © Copyright 2006 Siemens AG. All Rights Reserved.



## Assigning routing protocols to a wireless controller

1. In the **Wireless Controller** screen, click **Routing Protocols** in the navigation pane.
2. Enter **0.0.0.0** for the **Destination Address** and **0.0.0.0** for the **Subnet Mask**. Add the appropriate address for the **Gateway**.
3. Click the **Save** button.



If dynamic routing (OSPF) is being used, then the default route should be set automatically. However, it is always recommended that you assign a temporary static route in dynamic environments to allow the device to operate immediately without having to wait for the initial updates. Be sure to clear the check box for **Override dynamic routes**. This will allow dynamic routes to be the default once they arrive.

The screenshot shows the Siemens HiPath Wireless Controller Configuration web interface. The browser title is "HiPath Wireless Convergence Software - Wireless Controller Configuration - Microsoft Internet Explorer". The address bar shows the URL: "https://192.168.110.10:5825/SysMgmt/smRouting.php?sa=5a150f37bfecda27c1d8e36b62ffc8db".

The main navigation bar includes: Home | Logs & Traces | Reports | **Wireless Controller** | Wireless APs | VNS Configuration | Mitigator | About | LOGOUT.

The left sidebar menu includes: System Maintenance, **Routing Protocols**, IP Addresses, Port Exception Filters, Check Point, Mitigator, SNMP, Network Time, Management Users, Software Maintenance, Utilities, and Web Settings.

The main content area is titled "View Forwarding Table" and has tabs for "Static Routes" (selected) and "OSPF". Below the tabs is a table with the following data:

Route #	Destination Address	Subnet Mask	Gateway	O/D
1	0.0.0.0	0.0.0.0	192.168.110.15	on

Below the table are input fields for configuring a new route:

- Destination Address: 0.0.0.0
- Subnet Mask: 0.0.0.0
- Gateway: 192.168.110.15
- Override dynamic routes**

Buttons for "Add", "Delete", "Save", and "Cancel" are located at the bottom right of the configuration area.

The footer of the interface shows: [ SpectraView1 | | 0 days, 19:29 ] User: admin Port status: M Software: Rel3.1 (3.1.1.00.09) | Tracing: Inactive © Copyright 2006 Siemens AG. All Rights Reserved.

## AP registration

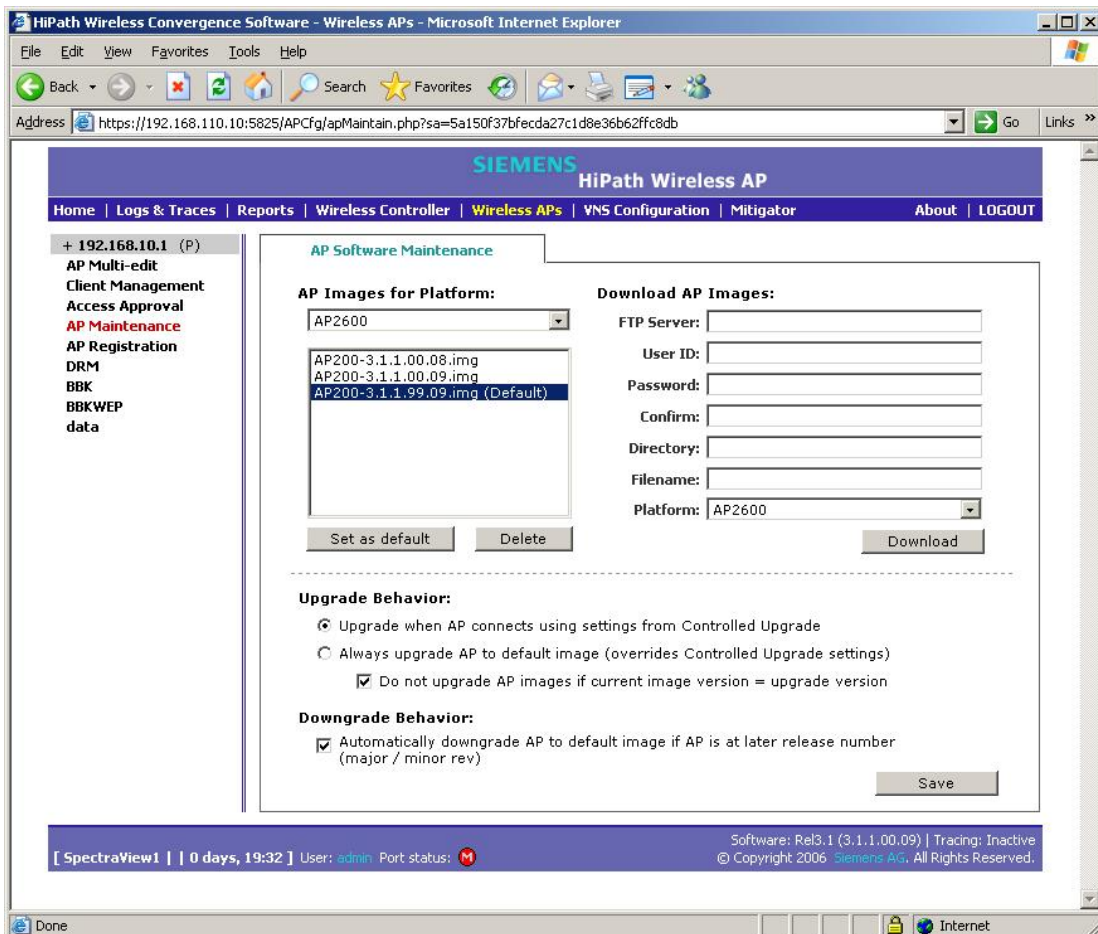
1. Click the **Wireless APs** button.
2. Click **AP registration** in the navigation pane.
3. Enter all information for your APs (see screen shot below). Make sure the setting for **Security Mode** is selected to **Allow all Wireless APs to Connect**.
4. Click the **Save** button.



This setting allows new APs to be added to the system automatically. Once the addition of APs is complete, it is recommended to switch this setting back to **Allow only approved Wireless APs to connect**.

## AP maintenance

1. In the **Wireless APs** screen, click **AP Maintenance** in the navigation pane.
2. Select the proper image file in the **AP Images** box and click the **Set as default** button.
3. Under **Upgrade Behavior** select the **Upgrade when AP connects using settings from Controlled Upgrade** option.
4. Select the **Do not upgrade AP images if current image version = upgrade version** check box.
5. Under **Downgrade Behavior**, select the **Automatically downgrade AP to default image if AP is at later release number (major/minor rev)** check box.
6. Click the **Save** button.



## Setting up SSID, Security and QOS

1. Click the **VNS Configuration** button.
2. Click the **Topology** tab.
3. Assign a subnet for clients for a specific **SSID**.
4. Under **DHCP Settings**:
  - a. Enter the appropriate address for the **Gateway**
  - b. For **Mask** enter **255.255.255.0**.
  - c. The address range should default to **192.168.121.2 – 192.168.121.254**. Change this if you want a limited range of addresses assigned to this subnet.
  - d. No DNS Servers or WINS is required.
5. Set the **Timeout Idle: pre** and **post** to **2**.
6. Under **Next Hop Routing**, set the **OSPF Route Cost** to **50000**.
7. Enter an **SSID** name.
8. Under **Wireless APs**, select the **b/g** check box for each AP.
9. Click the **Save** button.

The screenshot shows the 'HiPath Virtual Network Configuration' web interface in Microsoft Internet Explorer. The browser address bar shows the URL: `https://192.168.110.10:5825/NtwkCfg/NtwkCfg.php?sa=5a150f37bfecda27c1d8e36b62ffc8db`. The page title is 'SIEMENS HiPath Virtual Network Configuration'. The navigation menu includes: Home, Logs & Traces, Reports, Wireless Controller, Wireless APs, VNS Configuration (selected), Mitigator, About, and LOGOUT.

The main content area is titled 'Global Settings' and 'Virtual Network BBK'. The 'Virtual Network' section shows 'BBK' with 'data' as its type. Below this, there are buttons for 'Add subnet', 'Rename subnet', and 'Delete subnet'. The 'BBK' virtual network is currently selected.

The configuration page for 'BBK' is divided into several tabs: Topology (selected), Auth & Acct, RAD Policy, Filtering, Multicast, Privacy, and Policy. A note at the top right states: '\* Associate/disassociate AP from VNS will cause AP to reboot'.

The 'Topology' tab contains the following settings:

- Network Assignment:**
  - Assignment by: SSID (dropdown)
  - Allow mgmt traffic
  - Use 3rd Party AP
  - Use DHCP relay
  - Bridge Traffic Locally
- Timeout (mins):**
  - Idle: pre: 2, post: 2
  - Session: 0
- DHCP Settings:**
  - Gateway: 192.168.121.1
  - Mask: 255.255.255.0
  - Address Range: from: 192.168.121.2 to: 192.168.121.254
  - Exclusion(s):
  - Broadcast Address: 192.168.121.255
  - Domain Name:
  - Lease (seconds): default: 36000, max: 2592000
  - DNS Servers:
  - WINS:
- Next Hop Routing:**
  - Next Hop Address:
  - OSPF Route Cost: 50000
  - \* routing table/default cost used if not specified
  - Disable OSPF Advertisement
- SSID:** BBK
- Suppress SSID
- Wireless APs:**
  - b/g a
  - Spectra 1
  - Spectra 4

At the bottom of the configuration area are 'Save' and 'Cancel' buttons. The status bar at the bottom of the page shows: [ SpectraView1 | 0 days, 19:42 ] User: admin Port status: M. Software: Rel3.1 (3.1.1.00.09) | Tracing: Inactive © Copyright 2006 Siemens AG. All Rights Reserved.

## Filtering

1. In the **VNS Configuration** screen, click the **Filtering** tab.
2. Select **Default** from the **Filter ID** drop-down list.
  - a. Select all three options - **In**, **Out** and **Allow**.
  - b. Leave the **IP:Port** as **\*.\*.\*.\***.
3. Select **Non-Authenticated** in the **Filter ID** drop-down list.
  - a. Select all 3 options - **In**, **Out** and **Allow**.
  - b. Leave the **IP:Port** as **\*.\*.\*.\***.
4. Click the **Save** button.



A more secure setup for this topology might be:

```

Allow 192.168.121.* UDP
Allow 192.168.110.* UDP
Allow 192.168.123.* UDP
Disallow *.*.*.* N/A T
    
```

The screenshot shows the 'Filtering' tab in the configuration interface. The 'Filter ID' is set to 'Default'. A table below shows a single rule with 'In', 'Out', and 'Allow' checked, and 'IP:Port' set to '\*.\*.\*.\*' and 'Protocol' set to 'N/A'. Below the table, there are input fields for 'IP/subnet:port' (containing '\*.\*.\*.\*') and 'Protocol' (set to 'N/A'), along with 'Up', 'Down', 'Add', 'Delete', and 'Save' buttons. A note states: 'At least 1 rule is required for each filter. Rules with Allow unchecked are denied \*'. The interface also shows a sidebar with 'Global Settings' and 'Virtual Network' options, and a status bar at the bottom.

## Multicast configuration

1. In the **VNS Configuration** screen, click the **Multicast** tab.
2. Select the **Enable Multicast Support** check box.
3. From the **Defined groups** drop-down list, select or enter **Spectralink SVP (224.0.1.116)** and click the **Add** button.
4. Enable **Wireless Replication** for the multicast selection by selecting the check box beside the entry.
5. Click the **Save** button.

The screenshot shows the 'HiPath Virtual Network Configuration' web interface. The 'VNS Configuration' section is active, and the 'Multicast' tab is selected. The configuration is for a virtual network named 'BBK'. The 'Enable Multicast Support' checkbox is checked. Below this, a table lists defined multicast groups:

IP	Group	Wireless Replication
224.0.1.116	Spectralink SVP	<input checked="" type="checkbox"/>

Below the table, the 'Defined groups' dropdown menu is set to 'Spectralink SVP (224.0.1.116)'. The 'Save' button is visible at the bottom of the configuration area. The interface also shows a sidebar with 'Global Settings' and 'Virtual Network' options, and a status bar at the bottom indicating the user is 'admin' and the port status is 'M'.

## Security

1. In the **VNS Configuration** screen, click the **Privacy** tab.
2. For WPA2 AES-CCKM, click the **WPA-PSK** option, clear the **WPA v.1** check box, then select the **WPA v.2** check box.
3. For WPA TKIP, click the **WPA-PSK** option, clear the **WPA v.2** check box, then select the **WPA v.1** check box.
4. Enter the appropriate pass phrase in the **Pre-shared key** field.
5. Click the **Save** button.



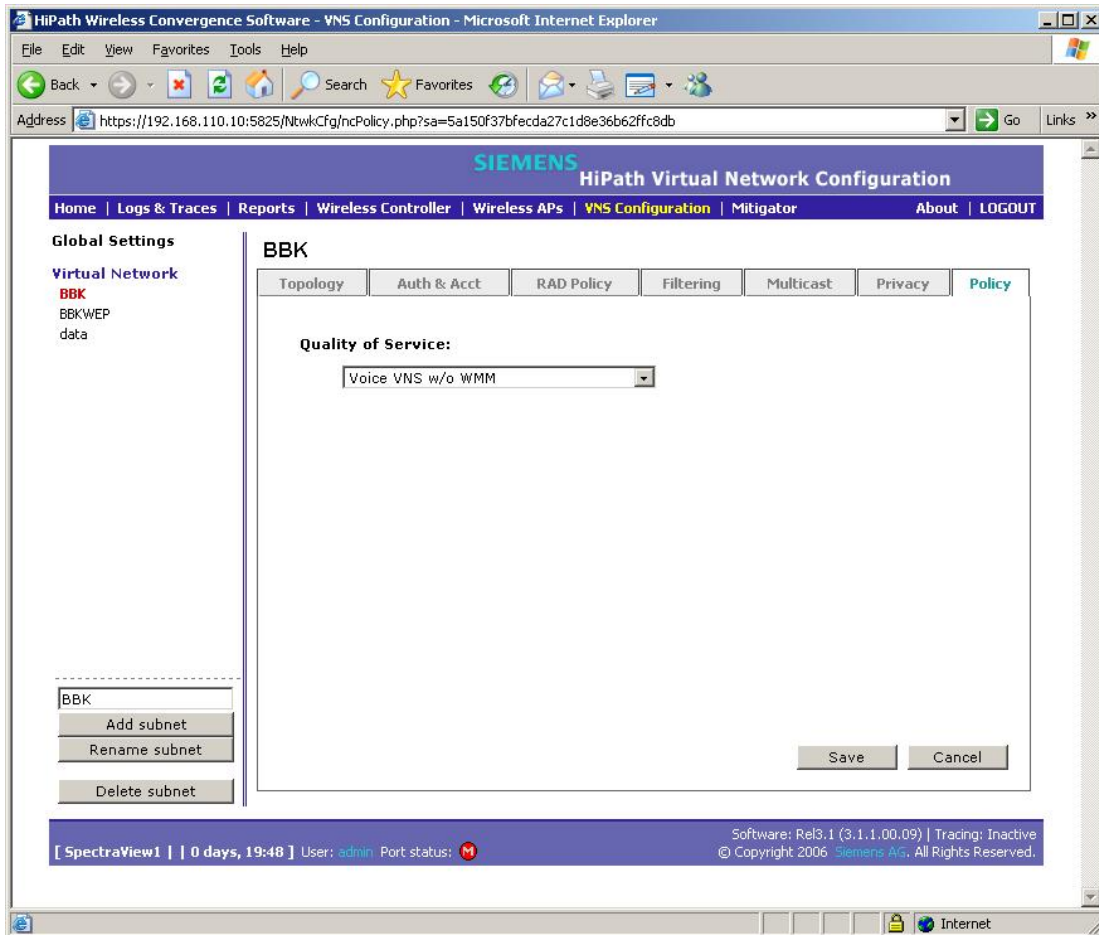
There is no hex key available at this time.

The screenshot shows the 'SIEMENS HiPath Virtual Network Configuration' web interface. The 'VNS Configuration' tab is active, and the 'Privacy' sub-tab is selected. Under the 'BBK' section, the 'WPA-PSK' radio button is selected. The 'WPA v.2' checkbox is checked, and its encryption is set to 'AES only'. The 'WPA v.1' checkbox is unchecked. A 'Broadcast re-key interval' of 3600 seconds is set. A 'Pre-shared key' field is visible with an 'Unmask' button. The interface also shows a 'Global Settings' sidebar, a 'Virtual Network' section, and a status bar at the bottom with system information like 'SpectraView! | C10 | 0 days, 3:46' and 'User: admin'. The browser window title is 'HiPath Wireless Convergence Software - VNS Configuration - Microsoft Internet Explorer'.



## Quality of service

1. In the **VNS Configuration** screen, click the **Policy** tab.
2. From the **Quality of Service** drop-down list, select **Voice VNS w/o WMM**; this is required for SpectraLink phones.
3. Click the **Save** button.



## Setting up other SSIDs

1. Repeat the above steps, starting at step 1.
2. Create a new SSID and DHCP pool as before. Each SSID has its own sub-net.
3. Use the same filtering settings as before.
4. Set up privacy as required.
5. If creating a sub-net for data, select **Best Effort** in the **Policy** page.

Make sure the proper SSID is selected on each page as it is being configured.

## Connecting access points to the controller

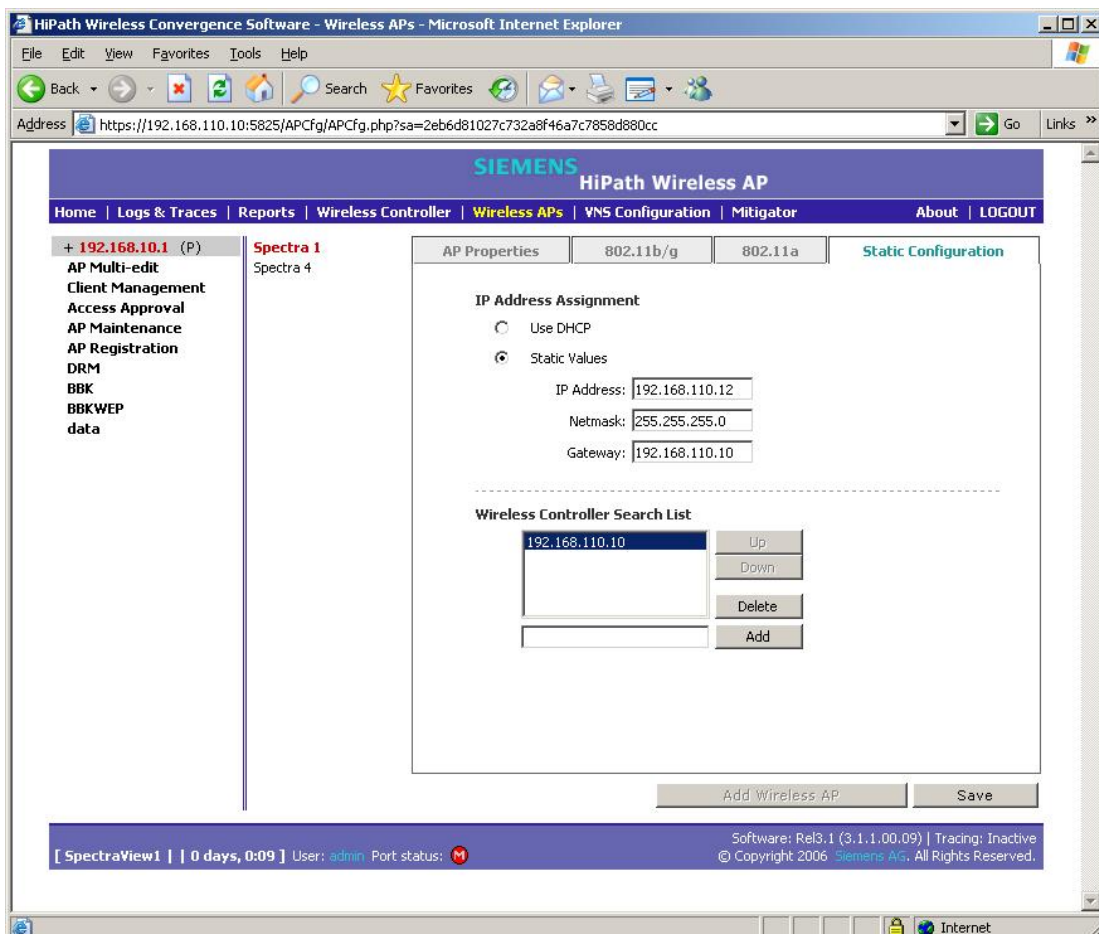
1. Click the **Reports** button.
2. Make sure the controller is configured to accept new APs (this is selected by default).
3. Physically connect the access points to the system one at a time. Once an AP is connected to the system, it will show up in the **Active Wireless APs** screen of the **Reports** menu.
4. Press F5 to refresh the screen.

Wireless AP	Serial	AP IP	Clients	Home	Tunnel Duration	Packets Sent	Packets Rec'd	Bytes Sent	Bytes Rec'd	Uptime	802.11b/g Ch/Tx	802.11a Ch/Tx
Spectra 1	0500005230000966	192.168.110.12	10	Local	19:36:28	33972015	33891835	5780913786	5776808965	19:35:13	10/4%	a off
Spectra 4	0500005230001142	192.168.123.11	0	Local	0:00:12	0	0	0	0	n/a	auto/0%	a off
<b>Summary</b>	<b>2 active APs</b>		<b>10</b>									

Refresh every  seconds

## Wireless APs address assignment

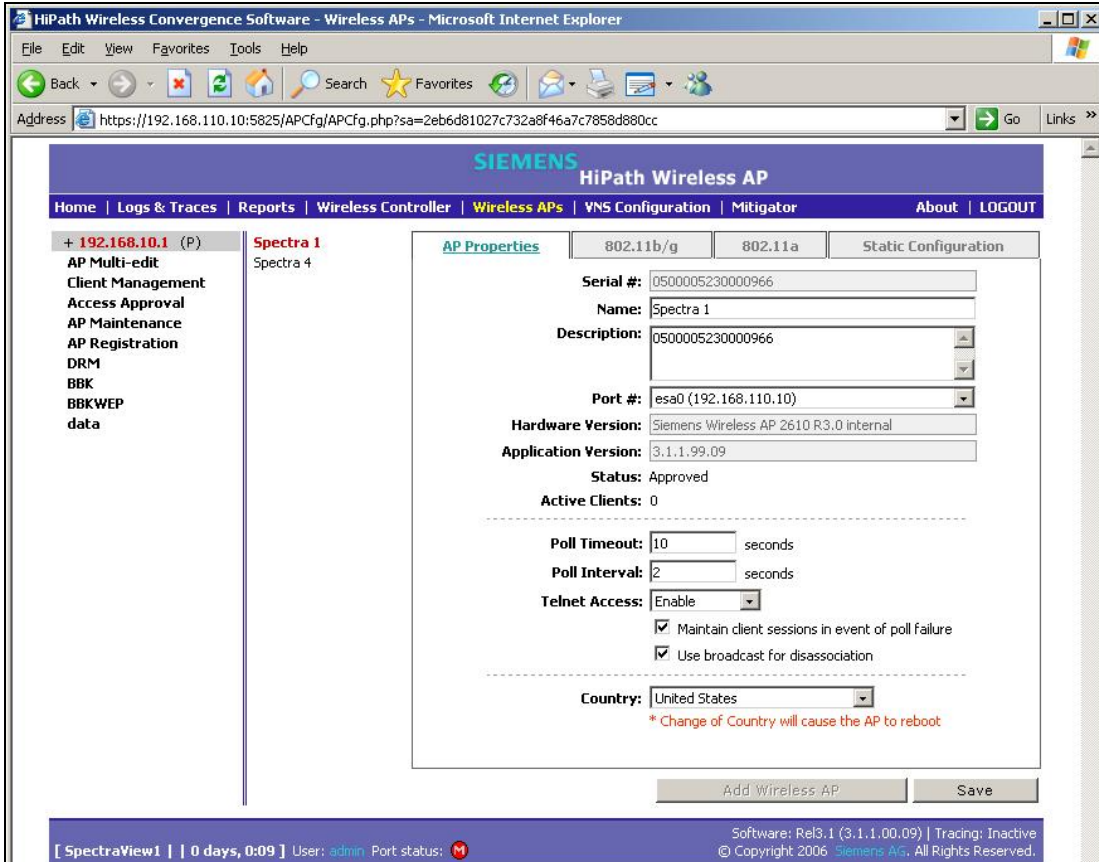
1. After all the APs have been connected and discovered by the controller, click **Wireless APs** tab.
2. Click the **Static Configuration** tab.
3. Select an AP to configure. The AP's name will default to their MAC address.
4. Under **IP Address Assignment** click either the **Use DHCP** or the **Static Values** option. If selecting **Static Values**, assign the proper values.
5. Under **Wireless Controller Search List** add the IP address of the controller port.
6. Repeat steps 4 and 5 for each access point.
7. Click the **Save** button.



For each AP, follow the steps in the following sections:

### AP properties

1. In the **Wireless APs** screen, click the **AP Properties** tab. Select an AP to configure. Here you can assign a meaningful name to each AP.
2. Enable **Telnet Access**. This is useful for troubleshooting the setup and configuring security settings.



### 802.11b/g settings

1. In the **Wireless APs** screen, select the **802.11 b/g** tab.
2. Select an AP to configure.
3. Under **Base Settings**:
  - a. Set the **DTIM Period** to **3**.
  - b. Set the **Beacon Period** to **100**.
  - c. Set the **RTS/CTS Threshold** to **2346**.
  - d. Set the **Frag. Threshold** to **2346**.

4. For **Enable Radios**, select the **802.11b** check box.
5. Under **Radio Settings**:
  - a. Select the appropriate **Channel** and **Tx Power Level**.  
(Note: DRM values will override this setting, if enabled).
  - b. Set the **Diversity** to **Best**.
  - c. Set the **Min Basic Rate** to **1 Mbps**.
  - d. Set the **Max Basic Rate** to **11Mbps**.
  - e. Set the **Max Operational Rate** to **11Mbps**.
  - f. Set the **Preamble** to **Short** (note that the value **Long** works as well).
6. Click the **Save** button.

The screenshot displays the Siemens HiPath Wireless AP configuration web interface. The main content area is titled '802.11b/g' and is divided into several sections:

- Base Settings:** Includes BSS Info (00:0F:BB:05:50:78 B8K, 00:0F:BB:05:50:79 data), DTIM Period (3), Beacon Period (100), RTS/CTS Threshold (2346), and Frag. Threshold (2346).
- Enable Radios \*:** Shows 802.11b checked and 802.11g unchecked.
- Radio Settings:** A list of configuration options with dropdown menus:
  - Channel \*: 2: 2417 MHz
  - Tx Power Level: Min
  - Diversity: Best
  - Min Basic Rate \*: 1 Mbps
  - Max Basic Rate \*: 11 Mbps
  - Max Operational Rate \*: 11 Mbps
  - No of Retries for Background BK: 4
  - No of Retries for Best Effort BE: 4
  - No of Retries for Video VI: 4
  - No of Retries for Voice VO: adaptive (multi-rate)
  - No of Retries for Turbo Voice TVO: 2
  - Preamble: Long
- g Radio Settings:** Protection Mode: Auto

At the bottom of the configuration area, there are 'Add Wireless AP' and 'Save' buttons. A status bar at the very bottom shows a success message: 'AP static configuration updated successfully' and system information including software version (Rel3.1 (3.1.4.03.03)), tracing status (Inactive), and copyright information (© Copyright 2006 Siemens AG).

## Enable the radio

1. Click the **VNS Configuration** button.
2. Click the **Topology** tab.
3. Enable each AP's b/g radio for each SSID.
4. Set **No. of Retries for Voice VO** to **adaptive (multi-rate)** and **No. of Retries for Turbo Voice TVO** to **2**.
5. Click the **Save** button.



After the controller and access points are set up, the Management port is no longer required. The Controller can now be managed through the Host Port, or the esa0 port in this configuration. Open a browser and connect to `https://<ip address>:5825`.